IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please ADD new claims 15 to 20 in accordance with the following:

1. (PREVIOUSLY PRESENTED) An airgap type etalon comprising:

a fixing member having at least one flat surface;

a first parallel member, which is transparent to incident light and has parallel flat surfaces, one of said parallel flat surfaces thereof being joined to said flat surface of said fixing member;

at least one second parallel member, which has parallel flat surfaces in which a distance between said parallel flat surfaces thereof is greater than a distance between said parallel flat surfaces of said first parallel member, and has an expansion coefficient different from that of said first parallel member, one of the flat surfaces of said second parallel member being joined to said flat surface of said fixing member so as to surround the outer periphery of said first parallel member; and

a transparent member, which is transparent to incident light and has opposite flat surfaces, one of said flat surfaces thereof being joined to the other flat surface of said second parallel member, said other flat surface being opposite to the joined surface to said fixing member;

wherein a Fabry-Perot interferometer is formed based on an airgap positioned between the flat surface of said first parallel member and the flat surface of said transparent member facing each other, and wherein a distance between the parallel flat surfaces and the expansion coefficient of each of said first and second parallel members, are set based on a variation of an air refractive index in the airgap due to a temperature fluctuation, so that when a temperature rises, a distance between the surfaces of said first parallel member and said transparent member that face each other, is set to be longer than an initial value before the temperature rises, to enable the compensation of a wavelength temperature dependency of a wavelength characteristic of incident light.

2. (ORIGINAL) An airgap type etalon of claim 1, wherein

said fixing member has a through-hole for passing light therethrough,

said first parallel member is formed with an antireflection coating on one flat surface thereof, and this flat surface formed with said antireflection coating is joined to said flat surface of said fixing member around said through-hole, and

said transparent member is formed with an antireflection coating on the other flat surface thereof opposite to the joined surface to said second parallel member.

3. (ORIGINAL) An airgap type etalon of claim 1, wherein

said fixing member is transparent to incident light, and is formed with an antireflection coating on a surface opposite to said flat surface thereof, and

said transparent member is formed with an antireflection coating on the other flat surface thereof opposite to the joined surface to said second parallel member.

4. (ORIGINAL) An airgap type etalon of claim 1, wherein reflection augmenting coatings are formed on said flat surfaces of said first parallel member and said transparent member facing each other, respectively.

5. (CANCELLED)

6. (CANCELLED)

7. (PREVIOUSLY PRESENTED) An airgap type etalon of claim 1, wherein temperature dependency of said transmission wavelength characteristic is set to be 25pm/ °C or more.

8. (CANCELLED)

9. (CANCELLED)

10. (CANCELLED)

11. (CANCELLED)

12. (CANCELLED)

13. (CANCELLED)

14. (PREVIOUSLY PRESENTED) An airgap type etalon comprising:

a fixing member having a surface;

a first parallel member which is transparent to incident light and has parallel surfaces and an expansion coefficient, one of said parallel surfaces being coupled to the surface of said fixing member;

a second parallel member having parallel first and second surfaces which are spaced apart by a distance which is greater than a distance between the surfaces of said first parallel member, said second parallel member having an expansion coefficient, the first surface of said second parallel member being coupled to the surface of said fixing member; and

a transparent member having a surface coupled to the second surface of said second parallel member, so that an airgap is formed between said first parallel member and said transparent member

the distance between the parallel surfaces and the expansion coefficient of each of said first and second parallel members being set based on a variation of an air refractive index in the airgap due to a temperature fluctuation, so that when a temperature rises, a distance between the surfaces of said first parallel member and said transparent member that face each other, is set to be longer than an initial value before the temperature rises, to enable compensation for a wavelength temperature dependency of a wavelength characteristic of incident light.

15. (NEW) A wavelength detecting apparatus comprising:

a first branching portion and a second branching portion to extract branched light from a main light path, respectively;

an optical filter to transmit the branched light from said first branching portion and to give a wavelength characteristic to the thus transmitted light;

a first light receiving portion to convert the transmitted light from said optical filter into an electrical signal; and

a second light receiving portion to convert the branched light from said second branching portion into an electrical signal,

wherein said optical filter is constituted by employing said airgap type etalon of claim 1.

16. (NEW) A wavelength locker employing said wavelength detecting apparatus of claim 15, said wavelength locker comprising:

a semiconductor laser diode the wavelength of which varies proportionally to temperatures;

an introducing portion to introduce monochromatic light from said semiconductor laser diode into said main light path; and

a controlling portion to feedback control the temperature of said semiconductor laser diode so that the mathematical division result between said electrical signal from said first light receiving portion and said electrical signal from said second light receiving portion becomes constant, to thereby fix the wavelength of the monochromatic light at a specific wavelength.

17. (NEW) A gain-equalizer, comprising:

a plurality of optical filters having periodical transmission wavelength characteristics shifted from one another by an approximately 1/2 cycle at a predetermined temperature, in which the respective transmission wavelength characteristics have mutually different temperature dependencies, such that a synthesized transmission wavelength characteristic to be obtained by synthesizing the transmission wavelength characteristics of said plurality of optical filters is passively varied corresponding to a temperature change;

wherein at least one of said plurality of optical filters is constituted by employing said airgap type etalon of claim 7.

18. (NEW) An optical amplifier employing said gain-equalizer of claim 17,

wherein said gain-equalizer has a transmission wavelength characteristic reverse to a gain wavelength characteristic of said optical amplifier, so that the gain wavelength characteristic of said optical amplifier is flattened irrespectively of a temperature change.

19. (NEW) A wavelength characteristic varying apparatus comprising:

a plurality of optical filters having periodical transmission wavelength characteristics, in which the transmission wavelength characteristics have mutually different temperature dependencies; and

temperature controlling means for controlling the temperature of said plurality of optical filters such that an inclination amount of a transmission wavelength characteristic obtained by synthesizing the transmission wavelength characteristics of said plurality of optical filters can be positively varied by a temperature control by said temperature controlling means,

wherein said plurality of optical filters are constituted by employing at least two airgap type etalons of claim 7, and the shift directions of temperature dependencies of transmission wavelength characteristics of said airgap type etalons are opposite to each other.

20. (NEW) An optical amplifier employing said wavelength characteristic varying apparatus of claim 19, in which a gain wavelength characteristic of said optical amplifier changes corresponding to an operating condition,

wherein said wavelength characteristic varying apparatus has a transmission wavelength characteristic reverse to a change of the gain wavelength characteristic of said optical amplifier corresponding to the operating condition, so that the gain wavelength characteristic of said optical amplifier is flattened irrespectively of the operating condition.